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BULLETIN  
OF THE  
TORREY BOTANICAL CLUB

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JANUARY, 1915

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West Indian mosses—II. Mosses of the Danish West Indies and  
Virgin Islands

ELIZABETH GERTRUDE BRITTON

(WITH PLATE 1)

In February, 1913, Miss Delia W. Marble and I spent four weeks collecting on the island of St. Thomas, while Dr. Britton and Dr. Shafer cruised around among the other islands of the Archipelago in search of cacti and other plants. An account of their trip will be found in the Journal of the New York Botanical Garden.\*

As far as we know, no record of any other collection of mosses from these islands exists, excepting the brief account given by Dr. I. Urban† of the collections made by the Rev. Johann Christian Breutel in 1841. Most of Breutel's mosses, 310 numbers, are deposited at the British Museum, but his collections included specimens from St. Thomas, St. Croix, St. Jan, St. Kitts, and Antigua, as well as the collections made in South Africa in 1853-1854. This would account for the large number of specimens preserved in his herbarium, as our experience has shown that the Danish and Virgin Islands are not particularly rich in species of bryophytes.

William Mitten had a few duplicates from Breutel's collections including the following six species: *Calymperes Richardi* C. Müll. (distributed as *C. Afzelii* Sw.), *Hymenostomum Breutelii* (C. Müll.) Broth., *Tortula agraria* (Sw.) Sw., *Philonotis tenella* (C.

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\* Jour. N. Y. Bot. Garden 14: 99. 1913.

† Symbolae Antill. 3: 28. 1902.

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Müll.) Jaeg., *Stereophyllum leucostegum* (Brid.) Mitt. (distributed as *Hypnum Breutelii* Schimp.), and *Taxithelium planum* (Brid.) Mitt. (distributed as *Hypnum Antillarum* Schimp. ms.).

Baron von Eggers collected a few mosses in St. Thomas, St. Jan, and Tortola in 1887, but as far as we know no list of these has been published.

We collected about seventy packets, but found only twenty-eight species, representing twenty-two genera, though we added three new species, a small *Phascum*, a sterile *Hyophila*, and a sterile *Bryum*, which has since been found on Mona Island also.

A brief synonymy with localities and habitat of these species is given in the following enumeration: Nos. 1-4 and 7-9 were determined by Mr. R. S. Williams; Nos. 16 and 17 by M. G. Dismier. Unless otherwise noted the specimens cited were collected by Miss Marble and myself.

1. DICRANELLA LONGIROSTRIS (Schwaegr.) Mitt. Jour. Linn. Soc. Bot. 12: 30. 1869

ST. JAN: without definite locality, *Breutel*, 1841.

2. LEUCOLOMA SERRULATUM Brid. Bryol. Univ. 2: 752. 1827  
*Leucoloma Riedlei* Besch. Jour. de Bot. 5: 146. 1891.

ST. THOMAS: on trees in wet woods, *Riedlé*.

3. OCTOBLEPHARUM ALBIDUM (L.) Hedw. Descr. 3: 15. 1791

ST. THOMAS: on roots of an *Anthurium*, stone walls, between Pearl and Bonne Resolution near Caret Bay, 1337.

4. LEUCOBRYUM POLAKOWSKYI (C. Müll.) Cardot, Mém. Soc. Sci. Nat. Cherbourg 32: 82. 1900

TORTOLA: on rotten wood, Sage Mt., *W. C. Fishlock* 83, May, 1913. Also in Porto Rico, *E. G. Britton* 2518, April, 1913.\*

5. FISSIDENS KEGELIANUS C. Müll. Linnaea 21: 181. 1848

ST. THOMAS and ST. JAN: at base of palms and on the ground, *Breutel*, 1841 (distributed as *F. palmatus* [Sw.] Hedw.). ST. JAN: wet bank, Bethania, *Britton & Shafer* 208a. ST. THOMAS:

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\* Both these are additions to ranges since the publication of Part 2, Vol. 15, of North American Flora.

moist banks near French wharf; Water Island, Cowell Point, 147; St. Peter, 38, 98; Magin's Bay, 191; Smith's Bay, 1289, 1316, 1459.

6. *FISSIDENS ELEGANS* Brid. Spec. Musc. 167. 1806

ST. JAN; on wet rock, Bethania, *Britton & Shafer* 361. ST. THOMAS: Cowell Point, 100.

7. *SYRRHOPODON FLAVESCENS* C. Müll. Syn. 1: 541. 1849

ST. JAN: on rotten wood, Bordeaux, 300 m. alt., *Britton & Shafer* 549. TORTOLA: without definite locality, *W. C. Fishlock* 82. May, 1913.

8. *CALYMPERES RICHARDI* C. Müll. Syn. 1: 524. 1849

*Calymperes Breutelii* Besch. Ann. Sci. Nat. Bot. VIII. 1: 278. 1895.

*Calymperes hexagonum* Besch. l. c. 286.

*Calymperes Hookeri* Besch. l. c. 287.

ST. THOMAS: without definite locality, *Breutel* (type of *C. Breutelii*); without definite locality, *L. C. Richard* (type of *C. hexagonum*); on rocks, summit of ridge, by roadside, north of Charlotte Amalia, 408; on bank, Cowell Point, 101. TORTOLA: Road-town to High Bush, 325 m. alt., *Britton & Shafer* 772.

9. *CALYMPERES LONCHOPHYLLUM* Schwaegr. Suppl. 1<sup>2</sup>: 133. *pl.* 98. 1816

TORTOLA: Sage Mt., *W. C. Fishlock* 85a, May, 1913.

10. *HYMENOSTOMUM BREUTELII* (C. Müll.) Broth.; E. & P. Nat. Pfl. 1<sup>3</sup>: 386. 1902

*Weisia Breutelii* C. Müll. Syn. 1: 664. 1849. Not Schimp.

*Gymnostomum Breutelii* Br. & Sch.; Paris, Index Bryol. 542. 1895.

*Weisia senocarpa* C. Müll. Syn. 2: 633. 1851.

*Gymnostomum senocarpum* Jaeger, Adumb. 1: 280. 1873.

*Hymenostomum senocarpum* Paris, Index Bryol. 597. 1895.

*Weisia Pabstiana* C. Müll. Bot. Zeit. 15: 382. 1857.

*Weisia edentula* Sull. Proc. Am. Acad. 5: 273. 1861. Not Mitt.

*Hymenostomum cubense* Hampe; Paris, Index Bryol. Suppl. 189. 1900.

ST. JAN: Emaus, *Breutel* (type locality); wet banks, Bethania, *Britton & Shafer* 209; Rosenberg and Bordeaux, *Britton & Shafer* 288, 534, 569. ST. THOMAS: on the ground, Water Island, 155; roadside banks, summit of ridge, Bonne Resolution, 1336; Bordeaux, 1384; St. Peter, 1258; top of Flag Hill, *Fitch & Shafer* 1494. TORTOLA: Peter Island, *Britton & Shafer* 860. ANAGADA: without definite locality, *Britton & Shafer* 1039

11. *Hyophila uliginosa* E. G. Britton sp. nov.

Plants attached to rocks in stream, gregarious and matted together by fresh water algae, soft and flaccid when moist; stems simple, about 5 mm. high, branching at apex; leaves much discolored and clogged with mud at base, green and spreading at summit of stems, about 1 mm. long; base hyaline and oblong; apex lingulate and slightly carinate, apiculate; margins plane, entire or rarely denticulate with a few hyaline teeth at apex; costa stout, papillose on back and smooth above ending in the cuspidate point, in section showing one row of ducts and two small bands of stereid cells; basal cells hyaline, oblong or square, up to  $16\mu$  long by  $8\mu$  wide, upper cells obscure up to  $5\mu$  in diameter, green and densely papillose, with several minute papillae on each surface; dioicous; flowers and fruit unknown; propagating by septate gemmae borne in clusters on brown filaments in the axils of the leaves. [PLATE I, FIG. 1-6.]

TYPE LOCALITY:—ST. JAN: Bethania, *Britton & Shafer* 367.

12. *Phascum sessile* E. G. Britton sp. nov.

Plants annual(?), gregarious in loose bare earth, on banks; stems simple, or branching at base, with several rosettes from one root, 1-2 mm. high; leaves inrolled with conspicuous yellowish-white costa when dry, bright green in color and spreading when moist, few, 8-12, oblong at base, obovate above, 1-1.25 mm. long by 0.4-0.5 mm. wide; costa percurrent or excurrent into a short cuspidate point, terete and smooth on back, with a narrow dorsal stereid band and 2-3 rows of large ducts; margins entire or finely crenulate and papillose; upper cells hexagonal, up to  $13\mu$  in diameter, densely chlorophyllose with 1-3 papillae on each surface; lower cells hyaline, oblong, 10-12 rows, up to  $40\mu$  long, not papillose, occasionally curved and yellow and slightly auriculate at basal angles; paroicous, antheridia few, with paraphyses, in small buds below or near the archegonia, of which occasionally several are fertilized making 2-3 fruits on one plant; calyptra small, conic, split, slightly papillose at apex; capsule immersed,

sessile on a small brown vaginule, globose, 0.5 mm. in diameter, sharply apiculate, indehiscent; walls with irregular hexagonal cells, 27–32  $\mu$  in diameter; spores brown, slightly roughened, 27–30  $\mu$  in diameter, maturing in spring. [PLATE I, FIG. 7–13.]

TYPE LOCALITY:—ST. THOMAS: Cowell Point, *E. G. Britton* 99, February 2, 1913.

DISTRIBUTION:—ST. THOMAS: Water Island, 150, 156.

This species belongs to the section *Microbryum* and is close to *P. Floerkeanum*, but differs in the less acuminate and less subulate leaves with plane margins without a yellow border, and more chlorophyllose and papillose cells.

13. *TORTULA AGRARIA* (Sw.) Sw. Fl. Ind. Occ. 3: 1763. 1806

ST. JAN: Bethania, *Breutel*; Bethania, *Britton & Shafer* 241, 268. ST. THOMAS: on limestone walls of old cemeteries, *Breutel*; on damp earth, Nisky, 77; Cowell Point, 97; old walls, Crown Estate, 450 m. alt., 1369; on rocks at waterfall, Magen's Bay, 1315; stone walls, Bonne Resolution School, 442.

14. *Bryum micro-decurrens* E. G. Britton sp. nov.

Plants gregarious, in loose soil, brown at base and also more or less brown above, from the excurrent awns; stems dull green, slender, erect and mostly simple, unbranched, not more than 5 mm. high, matted with brown tomentum at base; leaves erect-appressed when dry, not twisted nor glossy; spreading when moist, less than 1 mm. long by 0.2 mm. wide; costa wide at base 40  $\mu$  (at least .2 width of leaf), excurrent into a short subulate brown awn, slightly toothed at apex and on awn; cells of blade hexagonal, 27–40  $\mu$  long  $\times$  10  $\mu$  wide, basal cells shorter, oblong, with a long, decurrent narrow wing of one row of cells, extending down the stem to the next leaf; margins bordered by one row of longer narrow cells 5  $\mu$   $\times$  54  $\mu$  long, slightly revolute below and serrulate above; only known from sterile specimens.

TYPE LOCALITY:—ANAGADA: rocky plain near settlement, *Britton & Shafer* 1038.

DISTRIBUTION:—MONA ISLAND, *Britton & Hess* 1751, 1753.

These specimens have been compared with type specimens of *B. decursivum* C. Müll. from Porto Rico, kindly loaned to us by Dr. Engler from the Royal Botanical Garden at Berlin, and, though closely related by the decurrent narrow basal wing, ours differs in its shorter leaves, serrate margins and shorter cells.

## 15. BRYUM CRUEGERI Hampe; C. Müll. Syn. 1: 300. 1849

Dioicous plants bright yellowish green, shining gregarious in loose soil in gravelly bed of stream; stems short, less than 1 cm. high, upper part of stem erect, base decumbent red and radiculose; leaves light yellowish green, glossy, spreading, lanceolate, acute or acuminate, 2 mm. long  $\times$  0.35–0.5 mm. broad; costa narrow, ending in the carinate, mucronate apex, margins entire below slightly serrulate at apex, not bordered nor revolute; cells hexagonal 54–108  $\mu$  long  $\times$  13  $\mu$  broad, a few alar, shorter and broader, square or oblong, not decurrent; sterile but often propagating by gemmae.

ST. THOMAS: in bed of stream at Tutu, 422.

Compared with *Chas. Wright* 63 from Cuba, distributed as *B. ovalifolium* Sull., the leaves are slightly narrower and less concave, but they are evidently closely related species and both belong with the group of tropical American species having glossy leaves, and flaccid red stems, resembling a *Pohlia*. They grow mostly along streams and form a closely related group, of which *B. ripense* C. Müll. from Jamaica is also a member.

16. PHILONOTIS SPHAEROCARPA (Sw.) Brid. Bryol. Univ. 2: 25.  
1827

ST. THOMAS: moist banks, Bonne Resolution 421; Crown Estate, 450 m. alt., 1368, 1458.

17. PHILONOTIS TENELLA (C. Müll.) Jaeger, Adumb. 1: 541.  
1873–1874

ST. JAN: on wet banks, near Corallenburg, *Breutel*, 1841; Bethania, *Britton & Shafer* 208. TORTOLA: near Roadtown, 325 m. alt., *Britton & Shafer* 773.

18. PIREELLA CYMBIFOLIA (Sull.) Cardot, Rev. Bryol. 40: 17.  
1913

ST. JAN: on wet rock near Bethania, *Britton & Shafer* 359.

## 19. PTEROBRYUM ANGUSTIFOLIUM (C. Müll.) Mitt. Jour. Linn. Soc. Bot. 12: 426. 1869

TORTOLA: High Bush, *Eggers* 3240a, December, 1887; Sage Mt., *W. C. Fishlock* 85, May, 1913.

20. *NECKERA DISTICHA* (Sw.) Hedw. Descr. 3: 53. 1792  
ST. THOMAS: on rocks at St. Peter, 1456. TORTOLA: on rock in forest, High Bush, 375 meters alt., *Britton & Shafer* 841.
21. *NECKERA JAMAICENSE* (Gmel.) E. G. Britton, Bull. Torrey Club 40: 656. 1913  
ST. JAN: on bark of trees at Bethania, *Britton & Shafer* 364.
22. *CALLICOSTELLA BELANGERIANA* (Besch.) Jaeger, Adumb. 2: 257. 1874-1875  
ST. JAN: on stones, Bordeaux, 300 meters alt., *Britton & Shafer* 548.
23. *STEREOPHYLLUM LEUCOSTEGUM* (Brid.) Mitt. Jour. Linn. Soc. Bot. 12: 543. 1869  
ST. JAN: Emaus, *Breutel*; Bethania, *Britton & Shafer* 1357.  
ST. THOMAS: on rocks in shade, ravine at Tutu, 1291; waterfall near Magen's Bay, 1314.
24. *MITTENOTHAMNIUM DIMINUTIVUM* (Hampe) E. G. Britton, Bryologist 17: 9. 1914  
ST. JAN: on dead wood, Bordeaux, 400 m. alt., *Britton & Shafer* 595.
25. *TAXITHELIUM PLANUM* (Brid.) Mitt. Jour. Linn. Soc. Bot. 12: 496. 1869  
ST. JAN: *Breutel*; Bethania, *Britton & Shafer* 358, 365, 366; Bordeaux, 400 m. alt., *Britton & Shafer* 568, 580. ST. THOMAS: St. Peter, 1259; Crown Estate, 1366. TORTOLA: High Bush, *Britton & Shafer* 839.
26. *SEMATOPHYLLUM ADMISTUM* (Sull.) Mitt. Jour. Linn. Soc. Bot. 12: 485. 1869  
ST. JAN: Bordeaux, 300 m. alt., *Britton & Shafer* 554, 556, 578, 579. ST. THOMAS: St. Peter, on rocks, 1257, 1457. TORTOLA: High Bush, 375 m. alt., *Britton & Shafer* 814, 840.
27. *SEMATOPHYLLUM SERICIFOLIUM* Mitt. Jour. Linn. Soc. Bot. 12: 483. 1869.  
TORTOLA: on logs in forest, High Bush, 375 m. alt., *Britton & Shafer* 819



## 28. HAPLOCLADIUM MICROPHYLLUM (Sw.) Broth.; E. &amp; P. Nat.

Pfl. 1<sup>3</sup>: 1007. 1907

ST. THOMAS: shaded bank, Pearl to Bonne Resolution, 1335.

**Explanation of plate 1**

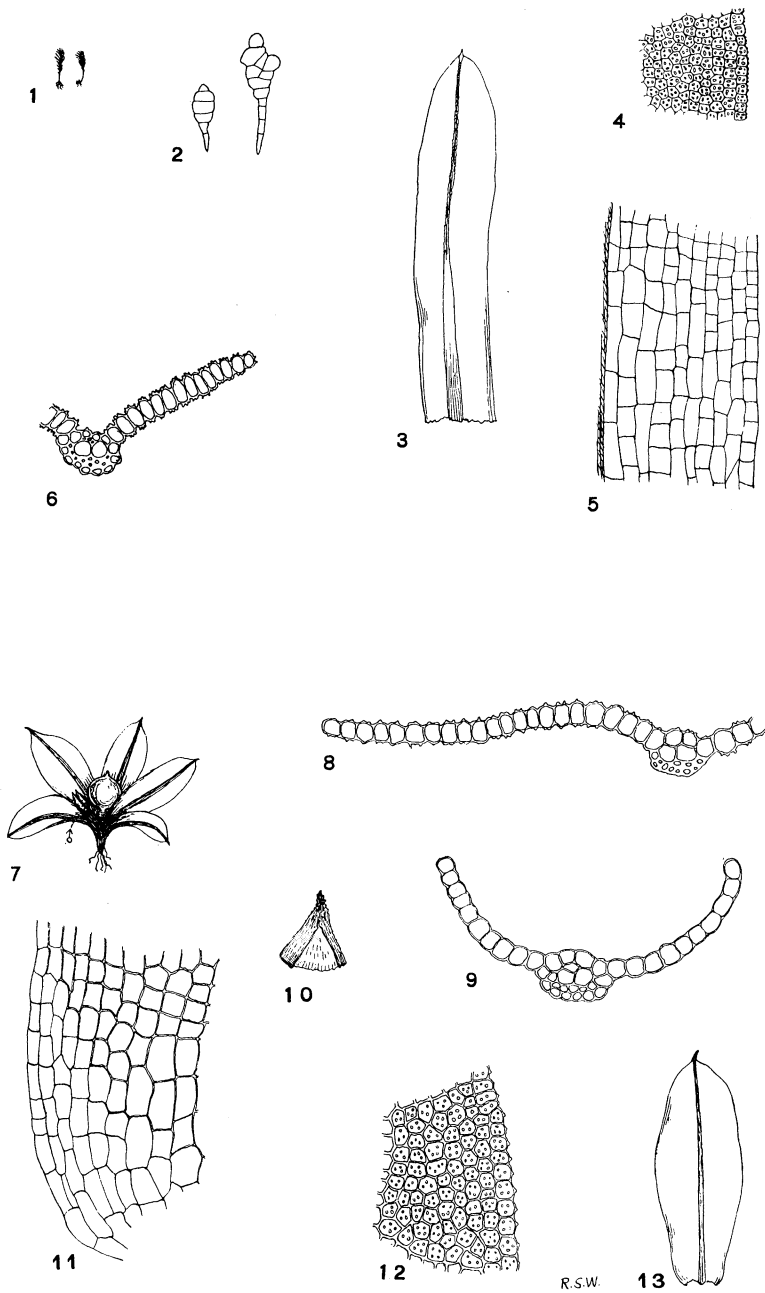
The figures were drawn by Mr. R. S. Williams from magnifications twice as great as expressed in the numbers, which represent the magnification of the figures as they stand in the reproduction.

## HYOPHILA ULIGINOSA E. G. Britton

- FIG. 1. Plant, natural size.
- FIG. 2. Propagula,  $\times 35$ .
- FIG. 3. Upper leaf,  $\times 35$ .
- FIG. 4. Cells in upper part of leaf,  $\times 200$ .
- FIG. 5. Cells of leaf base,  $\times 200$ .
- FIG. 6. Cross section in upper part of leaf,  $\times 200$ .

## PHASCUM SESSILE E. G. Britton

- FIG. 7. Plant,  $\times 11$ .
- FIG. 8. Cross-section in upper part of leaf,  $\times 200$ .
- FIG. 9. Cross-section near leaf base,  $\times 200$ .
- FIG. 10. Calyptra,  $\times 35$ .
- FIG. 11. Cells at basal angle,  $\times 200$ .
- FIG. 12. Cells in upper part of leaf,  $\times 200$ .
- FIG. 13. Upper leaf,  $\times 20$ .



1-6. *HYOPHILA ULIGINOSA* E. G. BRITTON  
7-13. *PHASCUM SESSILE* E. G. BRITTON